

## **Vehicle emission declines decreased deaths, study finds**

By Drew Costley, AP Science Writer

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Researchers say that thousands of lives and hundreds of billions of dollars have been saved in the United States by recent reductions in emissions from vehicles.

Harvard University researchers who study the environment and public health examined the impact of declines in emissions from vehicles over a decade. They found deaths dropped from 27,700 in 2008 to 19,800 in 2017 and that the economic benefits of the reduction in emissions totaled \$270 billion.

In a study published Wednesday in the Proceedings of the National Academy of Sciences, the researchers also concluded that if vehicles continued to emit air pollution at 2008 levels throughout the time period, the death total in 2017 would have been 2.4 times higher.

Light-duty vehicles such as cars, pickup trucks and SUVs made up a major portion of the health burden reduced by tougher regulations on fossil fuel companies and vehicle manufacturers, according to the study.

But the researchers found that these benefits were limited by an increasing and aging population and by drivers buying larger cars and driving more.

“Despite substantial progress in reducing emissions, you have this counteracting effect of population and larger vehicles,” said Ernani Choma, an environmental health researcher at Harvard and lead author of the study. “So it will be hard to achieve substantial progress, if we don’t enact more stringent policies.”

While there has been previous research on the health benefits and economic impacts of emissions reductions, this study paints a more precise picture of how emissions affect public health, according to experts not affiliated with the research team.

“Good environmental policy has drastically reduced transportation emissions over the past decade,” said Sumil Thakrar, an air quality researcher at the University of Minnesota. “But getting a good understanding of the benefits of those emissions controls is hard because it requires keeping track of a lot of other moving parts. And I think the authors do a remarkable job.”

The study also looked at the climate benefits that resulted from curbing air pollution from vehicles, but found that those benefits only made up 3% to 19% of the overall economic gains.

That’s because most approaches for reducing transportation emissions in the U.S. have been aimed at curbing air pollution, not climate change, said Susan Anenberg, associate professor of environmental and occupational health and global health at George Washington University.

“Catalytic converters, diesel particulate filters, those are taking pollutants out of the (environment), but those aren’t doing anything for (carbon dioxide),” she said.

That’s one reason Choma and his colleagues recommend tougher policies to curb emissions. Another reason, he said, is that if the upward trend in population and vehicle size and use continue, the same policies that created the health benefits highlighted in the study won’t be as effective in the future.

“If we look ahead to 2030 and nothing has changed, you’re only going to see a modest drop” in deaths from vehicle emissions, he said. “So that’s the case for more stringent policies.”

## **California isn’t cutting its greenhouse gas emissions fast enough. Here’s why**

By Andrew Sheeler

Merced Sun-Star, Tuesday, Dec. 14, 2021

California is not cutting greenhouse gas emissions fast enough to meet a 2030 deadline for reductions, according to a new report.

At the state’s current rate of progress, California will miss that deadline by several decades.

The 2021 California Green Innovation Index, released by the nonprofit group Next 10 and prepared by Beacon Economics, reveals that California reduced its greenhouse gas emissions by 1.6% from 2018 to 2019. Between 2017 and 2019, the state averaged a greenhouse gas emission decrease of 1.3% per year, far below what is needed to meet California's greenhouse gas emission reduction goals for 2030 and 2050.

"Assuming the same three-year average rate of reduction from 2017 to 2019 (-1.3%), California will reach its 2030 and 2050 goals in 2063 and 2111, respectively," according to the report.

In order to meet the 2030 goal, the state would have to see its emissions reduced by 4.3% each year from 2019 to 2030, more than double the year-over-year reductions recorded in recent years.

The single-biggest contributor to the state's emissions was the transportation sector, accounting for 40.7% of all emissions in the state, according to the report.

However, California may see a drop in transportation sector-related emissions for 2020 and 2021. The COVID-19-related shift to work from home resulted in a nationwide emissions dip of 15% for 2020.

"California could expect to see a similar level of decline in transportation emissions through 2020 and into 2021," the report says, though it adds that that data is not yet available.

The second-greatest contributor to California's greenhouse gas emissions were wildfires.

"Wildfires have always been a feature of the California environment, but they have been producing more (greenhouse gas) emissions than ever, fueled by the impacts of climate change," according to the report.

In 2020, emissions from wildfires were greater than emissions from any other sector except transportation, with the August Complex Fire alone producing more emissions than the entire commercial sector.

The commercial and residential sectors also continued to increase the amount of emissions produced. From 2014 to 2019, commercial greenhouse gas emissions rose from 4.8% to 5.8%, while residential emissions rose from 6.1% to 7.9%.

Another contributor to California's greenhouse gas emissions? The state's declining recycling rate.

Californians sent 42.6 million tons of waste to landfills in 2019, an increase of 2.7 million tons from the year prior. Meanwhile, California's recycling rate was down to 37% in 2019, far below the 75% goal for 2020, according to the report.

"2020's recycling rate is expected to be even lower, as the pandemic has led to an increase in one-time use disposables," the report said.

Though California has met its target goal of 33% renewable energy by 2020, the report shows that renewable energy growth has slowed in recent years. In 2020, the state added more gas power capacity (1.5 gigawatts) than any other source, including solar (1.3 gigawatts).

Electricity generation from wind, solar, geothermal, biomass and hydroelectric sources actually decreased in 2020, making up 45.3% of the state's power mix, down a full percentage point from the year previous.

"To meet California's goal of 50% renewable energy by 2026, the state's share of electricity generation from renewables would need to increase by 2.8% annually," said Patrick Adler, research manager at Beacon Economics, in a statement.

"But the percentage of California's total power mix from renewable energy resources crept upward by just 1.4% in 2020 — driven largely by the retirement of older and less efficient fossil fuel power plants, as opposed to the addition of new renewable energy resources. So, there's a lot of work to be done."

## **Chronic air pollution exposure may raise risks of COVID death, ICU admission, study says**

By Katie Camero

Merced Sun-Star, Monday, Dec. 13, 2021

Hospitalized COVID-19 patients who face chronic exposure to a specific kind of air pollution had an 11% and 13% higher risk of dying from the disease and being admitted to an intensive care unit, respectively, compared to coronavirus patients without such exposure, new research shows.

Particulate matter — a mixture of solid and liquid particles made of smoke, soot and dirt — was the only type of air pollution associated with COVID-19 mortality and ICU admission, even at levels below the regulatory standards set by the U.S. Environmental Protection Agency.

Neither nitrogen dioxide nor black carbon had any connection to more serious coronavirus outcomes, according to the study published Dec. 8 in the American Journal of Respiratory and Critical Care Medicine.

The findings highlight how air pollution exposure can influence how someone's body reacts to COVID-19, even at low levels, emphasizing its effects on health overall.

Decades of research shows chronic air pollution exposure can increase inflammation in the body, increase risks for heart disease and aggravate or cause respiratory issues, especially among children and older adults. Data collected throughout the pandemic reveals those with similar underlying health conditions are more likely to develop severe COVID-19.

"These data suggest that state, national and local air pollution regulation to lower long-term exposures should be considered a critical public health measure to improve infectious disease mortality, particularly in the current, and any future, pandemic," the researchers wrote in their study.

The team analyzed electronic health records of more than 6,500 adult COVID-19 patients admitted to seven New York City hospitals between March and August 2020. Researchers also studied air pollution data from the NYC Community Air Survey, which collects samples of air every two weeks from 93 monitors planted across the city's five boroughs.

A model helped the team estimate patients' exposure levels to particulate matter, nitrogen dioxide and black carbon based on the home addresses they provided when they were hospitalized.

In all, 31% (2,044 people) of those included in the study died from COVID-19, 19% (1,237 people) were admitted to the ICU and 16% (1,051 people) were intubated, meaning a tube was inserted down their throats to help circulate air in their lungs.

Generally, patients' air pollution exposure levels were low, but researchers found higher concentrations in higher-income neighborhoods; most studies find people living in lower-income communities face more pollution exposure.

Researchers speculate wealthy neighborhoods in NYC, such as Manhattan, have "densely packed streets, buildings and restaurants" that contribute to "higher annual average air pollution exposures."

Still, the new study suggests younger people of color are more susceptible to severe COVID-19 outcomes, like other research has found.

"The COVID-19 pandemic has brought to the forefront the critical role of the environment on health disparities," study corresponding author Dr. Alison Lee, an assistant professor of medicine and pediatrics at the Icahn School of Medicine at Mount Sinai in New York, said in a news release. "Policies to reduce air pollution must be considered a necessary public health measure, especially in communities that are disproportionately susceptible to air pollution's deleterious effects."

COVID-19 mortality rate was high among the patients studied, so researchers say it's possible the "lack of therapeutics early in the pandemic and hospital system factors associated with operational loads" may have played a role. Coronavirus vaccines were also not available when the study's data was collected.

And because the study focused on coronavirus hospitalizations, researchers could not determine how long-term air pollution exposure influences COVID-19 outcomes in everyone who is infected.

## **These Bay Area refineries want to ditch crude oil for biofuels. Critics say that's a bad idea**

By J.D. Morris

San Francisco Chronicle, Monday, Dec. 13, 2021

Two oil companies say they want to transform their Bay Area refineries to aid California's fight against climate change, but some environmental groups are skeptical and are pushing for closer scrutiny from local officials.

Phillips 66 and Marathon Petroleum intend to convert their respective refineries in Rodeo and Martinez to what they describe as cleaner, greener ways of producing fuel for trucks and other heavy-duty transportation equipment.

Instead of processing crude oil, the refineries would use material such as vegetable oil, animal fats and used cooking oil to create biofuels — mainly what the energy industry refers to as renewable diesel. It's chemically the same as traditional diesel, except it's not made from petroleum.

Nationwide, oil companies are beginning to convert refineries to renewable diesel production as part of a government-backed effort to increase its availability — a push the state of California supports. The projects are poised to increase the country's renewable diesel production capacity several times over, from 0.6 gallons per year in 2020 to 5.1 billion gallons per year by 2024, according to the U.S. Energy Information Administration.

In the Bay Area, oil companies say their conversion plans fit neatly with California's goal of moving away from fossil fuels and reducing planet-warming greenhouse gas emissions. While the state tries to get as many gas-powered cars off the road as possible, it also needs to find a cleaner way of powering trucks and other vehicles that won't be running on electricity anytime soon, companies say. That's where they see renewable diesel playing a key role.

"It's a great way to reduce carbon emissions right away as the state moves toward electrification," said Nik Weinberg-Lynn, the Rodeo-based manager of renewable energy projects for Phillips 66.

But local activists and environmental organizations are voicing reservations as Contra Costa County officials consider whether they should grant permits in the coming months.

One of critics' concerns is that the projects could rely heavily on soybean oil, which could cause harmful land use changes overseas and make the product more expensive and less available to companies that currently rely on it. That may cause current soybean oil users to switch to palm oil, which has been linked to deforestation and worker exploitation in other countries, environmentalists say.

Some are pushing for public officials to shut down the refineries as soon as practicable instead of helping them tap into government incentives that will prolong their operations.

"We see this as really a false solution that is being subsidized with public dollars," said Andres Soto, Richmond community organizer for the green group Communities for a Better Environment. "That money should be going into further research to develop the transportation of the future, which is electric."

Contra Costa County has released draft reports on the environmental impacts of the refinery proposals, and public comments are due Dec. 17. The reports generally upheld the refineries' position that converting to biofuel production would lower the facilities' greenhouse gas emissions.

Soto's organization and other groups think the county needs to conduct a closer examination of the impacts than it has so far.

"We really see the purported benefits as being illusory," said Gary Hughes, California policy monitor for Biofuelwatch. "These are not as green as they are being sold to the public as being."

Marathon halted production at its Bay Area refinery last year after fossil fuel demand plummeted during the early months of the pandemic. The company said it was contemplating converting the refinery to produce renewable diesel.

Marathon says its converted Martinez plant would reduce greenhouse gas emissions at the refinery by 60% and slash other pollutants by 70%. Phillips 66 says its proposal would cut carbon emissions associated with the fuel made at the site by about 60% while other pollutants at the facility would drop by more than 50%.

Ann Alexander, a senior staff attorney for the Natural Resources Defense Council, is worried that retooling the refineries, both of which are more than 100 years old, could have unintended consequences for public health. She said the equipment changes could generate more heat faster, possibly leading to an uptick in flaring, a safety measure when refineries burn off excess gas into the atmosphere.

“The refineries have already had flaring problems and there is a real concern that this could make it worse,” Alexander said.

Phillips 66 and Marathon said they had no reason to believe that the projects would lead to an increase in flaring.

Regardless, the debate is adding another layer to California’s complicated push to slash emissions from transportation, the state’s largest source of greenhouse gases.

Gov. Gavin Newsom has tried to escalate the transition to clean energy, directing the state to ban the sale of gas-powered cars by 2035.

At the same time, however, Newsom and other state officials have acknowledged that combustion fuels will continue to play a role for some time. Newsom has pointed to the Phillips 66 and Marathon projects at a news conference as proof of “the opportunity to transition, create jobs and do so in a sustainable way.”

In his executive order enshrining the 2035 ban on gas car sales, Newsom also told state agencies to fast-track regulatory processes “to repurpose and transition upstream and downstream oil production facilities, while supporting community participation, labor standards, and protection of public health, safety and the environment.”

State clean air regulators share Newsom’s view.

“As we transition away from fossil fuel production and use, we must ensure ongoing energy needs are being met through clean fuels, such as renewable diesel, that deliver both air quality and greenhouse gas benefits,” said Dave Clegern, spokesman for the California Air Resources Board, in an email.

One motivation for the refinery conversion projects is California’s low-carbon fuel standard, designed to reduce how much the state relies on fuels derived from petroleum.

Under the policy, the state sets benchmarks for how much carbon can be emitted for big companies to produce fuel. Companies can meet the benchmarks by producing and selling renewable fuels themselves or obtaining credits from other businesses that make them. Phillips 66 and Marathon’s proposals would turn their Bay Area refineries into producers of those credits.

“It certainly incentivized our project,” Weinberg-Lynn of Phillips 66 said of the low-carbon fuel standard.

Michael Wara, director of the climate and energy policy program at Stanford University’s Woods Institute for the Environment, said the refinery projects are also clearly “a way to extend the useful life of facilities that would otherwise be economically marginal.”

“Whether that’s a good thing or a bad thing probably depends on where you sit,” he said. “If you’re the company, it’s a logical step to take advantage of these incentives that have been created by California. If you’re a member of the community that lives around the refinery, it might not be so great, because you may have been hoping for a while that the refinery might close as we decarbonize the transportation fleet.”

Contra Costa County officials expect that the refinery projects’ environmental impact reports will go to a public hearing before the county’s planning commission in the first quarter next year. If the commission

approves the reports, the vote could be challenged and sent to the Contra Costa County Board of Supervisors at a later date.

Chevron has indicated that it wants to eventually supply all of its West Coast customers with renewable diesel. While Chevron hasn't announced any plans to overhaul its Bay Area operations, it will need to use multiple facilities to achieve its renewable diesel goal — and the company's Richmond refinery could, in theory, be one of them.